VOL. XVIII, No 4. FEBRUARY 17, 1921

THE JOURNAL OF PHILOSOPHY

A BEHAVIORISTIC VIEW OF PURPOSE

WHERE matters of fact are in question it is normally the office of the philosopher to trace the broader outlines of accepted fact rather than to contribute new items of fact. The features of human nature which have recently been assembled by psychology, and particularly the newer facts which have been brought to light by behavioristic and psychiatric observers have already begun to compose a physiognomy. For the first time since the moralists and theologians divided the soul from the body, man is beginning to find a place in nature without being stripped of his most distinctive characteristics. He has begun to move about on the surface of the planet while still retaining possession of his faculties. This achievement is due primarily to that general psychological tendency which has acquired the name of behaviorism from one of its particular and recent manifestations. Behaviorism in the generalized sense is simply a return to the original Aristotelian view that mind and body are related as activity and organ. Expressed in more modern terms this means that the mental life consists of those performances of an organism that immediately involve the exercise of its nervous system. The difference between psychology and physiology ceases to be a difference of subject-matter, like the difference between entomology and ornithology, where each deals exhaustively and exclusively with a class of objects; and becomes a difference of method and approach like that between chemistry and physics, where two sciences deal with interpenetrating type-complexes which contain common elements and are found in the same objects. Psychology deals with the grosser facts of organic behavior, and particularly with those external and internal adjustments by which the organism acts as a unit, while physiology deals with the more elementary constituent processes, such as metabolism or the nervous impulse. But in so far as psychology divides the organism it approaches physiology, and in so far as physiology integrates the organism it approaches psychology.

There is at present another difference that is likely in the near future to be obliterated. The nervous system of a highly developed

organism plays a double rôle. Or, as it is more commonly expressed, there are two nervous systems, the cerebro-spinal or central system, and the autonomic system. The former regulates the organism's external affairs and the latter its internal affairs. Now it is customary for psychology to concern itself primarily with the former, leaving the latter to physiology. In other words psychology views behavior as a commerce of the organism with its environment, in which the organism imports stimuli and exports acts. The central nervous system receives stimuli at the peripheral sense-organs and delivers acts at the skeletal muscles. It has also its executive offices in which a record is kept of all such transactions, and in which the rate and the form of exchange are determined. Meanwhile the autonomic nervous system is supposed to keep the plant in repair and supply the fuel. But as in most forms of business, it is difficult to draw any sharp line between up-keep and out-put. Certainly if the reserves of the human organism are seriously depleted, or if the machinery breaks down, all hands are called upon to repair the damage and for a time no other business is transacted. Indeed the executives would appear to be constantly in receipt of reports on the condition of the plant and largely to be governed in their policy by what is reported. There is much to be said even for the view that the care of the plant was originally the sole object of the business and that its commercial transactions developed out of the need for fuel. This is the view, now strongly supported,[1] that the central nervous system is an outgrowth of the autonomic system. In any case from what we now know about emotion, and what we have always known, but have not yet succeeded in understanding, about feeling, it is evident that a powerful influence is exerted on the organism's behavior by the whole internal economy, including the glands of internal secretion as well as the major nutritive, respiratory and circulatory processes.

Waiving this last consideration for the present, let us return to that view of the organism which is defined by the functions of the central nervous system. The organism is on the plane of moving bodies and physical forces, where it is elbowed and trodden by all elements, but where it gives as good as it gets. Where does the "mind" fit into such a picture, and where the will and the reason? Somewhere, evidently, between the stimulus and the act. If you ask a man a question and get an answer, his mind has been at work between the question and the answer, between the sound waves which impinged on his auditory nerve and those which emanated from his vocal organs. From your standpoint as an untrained observer there is a hiatus. You put in your question and you wait

[1] *Cf. e.g.*, Kempf, *The Autonomic System and the Personality.*

for your answer. If you are an introspective psychologist you ask another question, and get another answer. If you are a behaviorist you follow the stimulus towards its destination and the act towards its source until they meet and the gap is closed. If you are an introspectionist you regard the mind as something that *supervenes,* or hovers about the hiatus. If you are a behaviorist you regard the mind as something that *intervenes* as an arc or circuit of the general causal nexus. When so regarded the mind appears as a physical complex which receives, transmits, converts and gives out physical influences, and which is constantly changing its external and internal adjustments in consequence of its activities.

The elementary unit of conduct or behavior on the part of organisms having such a structure will be a movement induced by a stimulus. The specific character of the act will lie in its having effected just that movement in consequence of just that stimulus; and the characteristic property or state of such a mind will lie in the arrangement of parts conditioning such an act. An act of mind will be a response; and a state of mind will be a disposition to respond.

Now many will object that this is to leave out "consciousness." But what is this "consciousness" we are under obligation to include —is it a datum or a theory? It was once said that psychology omitted the soul. And so it did, in so far as the term "soul" was the name for a theory formulated in theology or "rational" psychology. But psychology never deliberately neglected any of the facts or problems lying within the field of the mental life of man; and as a result of omitting the older theory of the soul it reached a very much better understanding of the actual mode of existence in question. No one would now think of conceiving the soul as a simple, indivisible and incorruptible static entity, or as a naked act of pure reason. In every philosophy the soul is now a process; or a flowing, and more or less complexly organized, experience. When, therefore, we say the soul is lost, what we really mean is that a theory is more or less obsolete, as a result of its having been successfully ignored. The soul as an existent fact having a nature and an explanation, is not lost, but found.

Now something of this same outcome may with reasonable safety be predicted in the case of "consciousness." If a behaviorist be enlightened he will have no intention of omitting any facts, but only of abandoning a theory which he believes has proved unsatisfactory. He does not abandon *consciousness,* but the introspective *theory* of consciousness. This consists in taking the data of introspective analysis as the ultimate constituents of the mental life, the

units which in their own peculiar aggregations and sequences compose mind. Psychophysical parallelism and atomic sensationalism are developments of this theory, and are evidences of its weakness. It has in fact never worked. The most illuminating things that psychology has said have been said when it has allowed itself liberties with this theory, and introduced as much of the outlying physical and organic field as proved convenient. The behaviorist has emphasized the failure of the introspective theory to yield results comparable to those obtained in kindred sciences, and proposes to try another. He does not deny or intend to neglect any of the data of introspection. He merely believes that this is not the best place to begin, because the introspecting mind is a peculiarly complex form of the mental life. He regards an animal reflex or habit as a more elementary mental phenomenon than an introspectively discriminated sensory intensity.[2] He believes that introspection does not present mind as such, or characteristic mental phenomena or events; but that it may present pretty much any subject-matter, such as parts of physical nature within or without the organism. Beginning with any experience, introspection suspends further exploration and becomes more attentively observant of what was first in this way circumscribed. Features are now discriminated which were not at first noticed; and construed as a test of capacity, this doubtless indicates how many items of the physical world the human mind can discriminate. But the mental part of it should then be looked for not in what is discriminated, but rather in the act of discrimination. And since this is a relatively complex case of mental action it would appear to be the part of prudence to begin with some simpler act, such as the reflex. The behaviorist concedes that introspection and all its works must find a place in any comprehensive and adequate view of mind. When they do find their place they will perhaps have lost their present outlines, because of having been broken up and redistributed. But in so far as the new theory is more successful than the old, consciousness as a group of facts, as something that exists and happens, will have been found and not lost.[3]

[2] For an admirable discussion of this question and a behavioristic interpretation of sensation, *cf.* G. A. De Laguna: "Sensation and Perception," this JOURNAL, 1916, Vol. XIII., pp. 533, 617.

[3] The behaviorists would hope, incidentally, to rescue consciousness from the hands of its parallelistic friends who in proportion as they insist upon its mental purity find themselves compelled to admit its causal impotence. Thus Professor H. C. Warren is driven by the very rigor of his scientific method to conclude that "To say that we are 'conscious of the performance' of the act does not add to the explanation of the physical changes which occur, nor does 'lapse of consciousness' add to the explanation of inappropriate reactions" ("The Mechan-

The failure of the introspective theory of consciousness has been most pronounced in the region of the will and the affections, in other words, in that department of human nature where there is now the greatest demand for light. That the introspective method should tend to a reduction of the mental life to sense-data is perhaps evidence if its being at bottom only an analysis of *objects of cognition.* In any case the failure of introspection to give any satisfactory account of feeling, desire, will, and conation does not admit of doubt. The dubious feelings of "pleasantness" and "unpleasantness," which if they *are* a unique species of introspective data ought to be indubitable, are held by some to be simple sensations, by others to be fusions of organic sensations, and by others to be acts or "attitudes" of liking and disliking. The notion of a feeling element serves for the present only to prevent opinion from swinging either towards a consistent sensationalism, or towards a consistent activism. The former would obliterate the distinction between cognition and motor-affection; the latter would involve the abandonment of the introspective method.

Meanwhile, wherever accounts of the motor-affective life preserve anything distinctive and peculiar, they incorporate something of the movement and action of the physical organism. The basic antithesis of favor and disfavor, which is said to distinguish active feelings, is an echo of the antithesis between positive and negative reactions.[4] Desire viewed introspectively can never be anything but a combination of ideas and feelings. A. Meinong and other exponents of the introspective method have seen the difficulty of accounting in these terms for actual dynamic differences, such as that between desiring a thing and liking to think of it, or that between real desire and the sham-desire characteristic of play and esthetic detachment. But being an introspectionist, Meinong can not follow up the method of common sense and refine the evident differences of behavior and functional adjustment, but must simply invent *ad hoc* such entities as the *Annahme, Phantasiegefühl* and *Wissensgefühl.*[5] C. V. Ehrenfels makes a truly heroic effort to

ics of Intelligence," *Philos. Rev.*, 1917, Vol. 26, p. 617). The better course would be so to interpret "consciousness" of the performance as to enable it to take its place among the determining conditions of the performance; that is to construe consciousness dynamically from the outset.

[4] This appears to me to be the case, for example, with Schwarz's conception of *Gefallen* as distinguished from *Gefühl. Cf.* his *Glück und Sittlichkeit,* Halle, 1902. I do not deny the common opinion that the animistic view of nature is a projection into external objects of the experience of conation, but I do affirm that what is so projected is now understood to be mainly if not wholly an experience of bodily action.

[5] *Cf. Ueber Annahmen,* 1902, *passim.*

define desire introspectively, and after observing that there is here no unique psychical element, proposes a peculiarly complicated combination of ideas and feelings. *"Was wir Begehren nennen, ist nichts anderes als die—eine relative Glücksförderung begründende —Vorstellung von der Ein-oder Ausschaltung irgend eines Objectes in das oder aus dem Causalgewebe um das Centrum der gegenwärtigen concreten Ichvorstellung."*[6] Waiving all doubts as to the introspective correctness of this description, it is to be noted that in so far as it remains rigorously introspective it fails to provide for the dynamic aspect of desire. The impelling force of desire is supposed to lie in feeling, in *Glücksförderung*. Since it is not clear whether Ehrenfels finds the distinctive feature of desire to lie in the possession of the mind by the idea, or in the tendency of the idea to be realized in fact, let us consider both cases. An idea of the creation or annihilation of an object enters the mind and keeps its place there whenever the subject in question would otherwise feel worse. But this less agreeable alternative never becomes an introspective datum, and Ehrenfels thus virtually explains desire in terms of the way the subject in question is *disposed* to feel. Or, let us suppose desire to be the tendency of the idea to be realized in fact. As Ehrenfels describes it, this means that an idea not only enters the mind and holds its place therein by virtue of its relatively agreeable character, but is superseded by a succession of ideas each of which in turn more nearly approximates the actuality of an object at first only remotely represented in idea. Thus the kinesthetic images of the bodily movements which immediately cause the object's actuality take the place of the first bare supposition of its actuality, and the process will culminate in the perception of the actuality as an acomplished fact. But how does *Glücksforderung* account for this succession? Again we can only say that if each step in this progressive realization had not been taken when it was taken the subject would have been less pleased than he was. The line from the idea to its realization is the line of most possible pleasure under the circumstances. But this only establishes a hypothetical concurrence of pleasure with realization. The pleasures themselves evidently do not account for the realization. They must themselves, along with the realization, be explained in terms of some tendency or disposition for which introspection has no eye. Desire is a state of mind with reference to an object such that the mind "won't be happy till it gets" the object. But to explain such a state of mind, or even to describe it in the sense of assembling the facts that out-

[6] *System der Werttheorie*, 1897, I., pp. 248–249.

line and block it off, it is necessary to deal with the organism and the environment in their round physical dimensions.[7]

As to will, Münsterberg's reduction of this to such terms as *der Wahrnehmung des erreichten Effektes die Vorstellung desselben vorangeht,*[8] perfectly illustrates the extent to which introspection forces its subject-matter into the cognitive form, or endeavors to make up the whole of will by piecing together its cognitive shreds and patches. Münsterberg deserves credit for the vigorous consistency with which he adhered to introspection when he did employ it, as well as for his recognition of the fact that the will when so regarded is not the real will at all.[9]

As to conation or effort, introspective records seem to be confined mainly to sensations or feelings of conation or effort, these being first conceived in some physiological sense. Thus for Ehrenfels striving (*streben*) differs from willing through the presence of *Bewegungsempfindungen* or *Anstrengungsempfindungen.*[10] Stout speaks of a "mental striving," which "tends to realize itself," and of which the physiological correlate is "the tendency of a neural system to recover a relatively stable condition." What, one may fairly ask, is the common meaning of "tendency" on the mental and the physiological sides? Or is the latter the real tendency and the former the feeling of it?[11] McDougall argues from the principle of parallelism that we are justified

> in assuming that the persistent striving towards its end which characterizes mental process and distinguishes instinctive behavior most clearly from mere reflex action, implies some such mode of experience as we call conative, the kind of experience which in its more developed forms is properly called desire or aversion, but which, in the blind form in which we sometimes have it and which is its usual form among the animals, is a mere impulse, or craving, or uneasy sense of want.[12]

Reading this author's account as a whole one can not but be convinced that he derives the structure of instinct altogether from its organic aspect, as when he says that "the innate psycho-physical *disposition, which is an instinct,* may be regarded as consisting of three corresponding parts, an afferent, a central, and a motor or efferent part, whose activities are the cognitive, the affective, and

[7] Ehrenfels himself frequently appeals to *Gefühlsdispositionen; e.g., op. cit.,* I., p. 41. For criticisms of Ehrenfels similar to that offered above, but having a very different moral, *cf.* Meinong: *Uber Annahmen,* 1902, pp. 293–296; W. M. Urban, *Valuation,* pp. 35–37. *Cf.* also Ehrenfels: *op. cit.,* I., p. 251, note.

[8] Münsterberg's *Willenshandlung,* p. 88.

[9] *Cf. Psychology and Life,* 1899, p. 208.

[10] *Op. cit.,* I., p. 221.

[11] *Analytical Psychology,* II., pp. 82, 83.

[12] W. McDougall: *Social Psychology,* p. 28.

the conative features respectively of *the total instinctive process.*"[13] Similarly he says that every instance of instinctive behavior involves "a striving *towards or away from*" an object; and that in all instinctive behavior there is "*a persistent striving towards the natural end of the process,*" which is intensified by obstacles.[14] It is clear that neither the three-fold arrangement of instinct, involving the assignment of conation to the motor part, nor the direction of conation as "towards" or "away from" an object, nor the persistence of the striving appear at all in the field of introspection. In other words, all the characteristics of conation are borrowed from the behavior of the organism, except what is comprised under "feeling of" or "consciousness." What is really described is what one is conscious of when one is conscious of striving. It would seem reasonable, then, first to describe and explain *striving* as a general organic process, and then to discuss the further and necessarily ulterior question of the feeling or consciousness to which it gives rise.[15]

The defects of parallelistic introspectionism are especially flagrant in the motor-affective field of the mental life. Almost every recent advance in this field has resulted from the more or less complete abandonment of the introspective method of description and the parallelistic method of explanation. The most notable advance, an advance that has been accepted by the social sciences as well as by popular opinion, is the rejection of the once-classic calculating hedonism, the view that conduct is ruled by *selfish pleasure-pain reasons.*[16] The chief cause for the obsolescence of this view has been the resort to biological in place of introspective methods of explaining human conduct. Pleasure and pain are peculiarly introspective entities; and an introspective account of action tends, as we have seen, to place the whole burden of explanation on feeling. As to the selfish and calculating part of it, that evidently arose from the introspective method of asking an agent to explain his own conduct. Such a question is ambiguous, and is commonly construed by the subject interrogated as a demand for reasons by which to justify his conduct. In the ordinary run of conduct the best a man can say in defense of his conduct is that it is prudent,

[13] *Ibid.*, p. 32. The italics are mine.

[14] *Ibid.*, pp. 26, 27. The italics are mine.

[15] It has sometimes been argued that desire, will, *etc.*, must be complete in introspection because a subject may know infallibly that he is desiring, or willing without knowing anything about his bodily states. The argument has absolutely no force. Such knowledge is not infallible, nor is it entirely without bodily data. Furthermore there may be "infallible signs" which do not constitute either direct or complete experience of the event in question. *Cf.* B. Russell: "On the Nature of Acquaintance," *Monist*, 1914, XXII., 184.

[16] *Cf.* G. Wallas, *Human Nature and Politics*, Ch. I.

that is conducive to his own satisfaction (which he is perfectly willing to *call* pleasure).

This "key" to human conduct has now been exchanged for a new one, or for a whole set of keys of a new type. The first of these to be adopted was the unit-instinct, and the most recent is the "complex."[17] The unit-instinct made prominent by James, and at present exemplified in McDougall's widely read and widely quoted *Social Psychology,* is being questioned by psychologists at the same time that it is being very widely and uncritically adopted in sociology and economics.[18] Meanwhile the influence of Freud has rapidly increased, and at the same time his fundamental conception of the "libido" has been generalized to free it from an exclusively sexual meaning.[19] The "complex" has this advantage over the instinct, that it is not necessarily a genetic conception. It is true that orthodox Freudians trace all complexes to inherited and infantile eroticism. But in its generalized form the complex is essentially a present dynamic agency; in Hart's words, "a system of connected ideas, with a strong emotional tone, and a tendency to produce actions of a certain definite character."[20] A complex in this sense may be appealed to for explanatory purposes without identifying that most doubtful and elusive line that divides what is original from what is acquired.

But what have these two conceptions in common? Why may the instinct and the complex be said to be keys of the same type? In the first place, because both are essentially dispositions. They exist whether they are exercised or not. And when they are exercised they are activities, like circulation and respiration, describable in terms of characteristic organic and environmental changes, and not describable except in a most incomplete and misleading way,

[17] One hesitates to group "complex" and "sentiment" with "instincts," "purpose" and "determining tendency" because the two former conceptions appear to regard an *object* as the source of unity, whereas the latter emphasizes a dominant activity. It does appear to be possible to divide a man into his "*A*-system" of responses, his "*B*-system," *etc.,* or into ambitions, enterprises, problems, *etc.,* which will involve many objects. I believe, however, that the more these things are analyzed the more indistinguishable they become. In so far as my *A*-responses have unity, as for example my love of my friend, some one instinct or emotion has become dominant in my dealings with him, and prescribes what my other reactions shall be. In other words I have something like a purpose with reference to my friend. A purpose on the other hand has a unique reference to certain objects, perhaps to one object, which is the object of its culminating and "satisfying" activity.

[18] *Cf. e.g.,* Th. Veblen: *The Instinct of Workmanship,* 1914; O. Tead: *Instincts in Industry,* 1918; C. H. Parker: "Motives in Economic Life," *Proc. of the Amer. Economics Assoc.,* 1917, pp. 212–231.

[19] *Cf. e.g.,* Hart: *Psychology of Insanity,* 1912.

[20] *Op. cit.,* p. 61.

in terms of introspective data. There are three possible ways of assigning a status to dispositions. Assuming that the mental is non-physical, and that dispositions are mental, they may be construed as belonging to an "unconscious" mental life. What this mental life is which is neither physical nor introspective no one has yet succeeded in making clear. And since every indication points to a physiological interpretation of dispositions, this conception of the "unconscious" is as gratuitous as it is unintelligible. Seeing the force of this, one may conclude that since dispositions are physiological they are therefore not mental. Or, thirdly, accepting the behavioristic version of mind, one may regard dispositions as both physical and mental: physical because consisting in certain physiological structures, mental because of the peculiar type of function or activity in which these structures are engaged. Instincts as a rule have been so interpreted largely because the conception was derived from the observation of animals, where mind has always in practise meant behavior. That complexes have not as a rule been so interpreted seems to be due to the fact that the Freudians have been primarily interested in the activities of the complex rather than in its structure and place in nature.[21] Of one thing they have been sure, namely that this fundamental mode of mind is not a datum of introspection. Their interpretation in physiological terms would not contradict any observed properties which they possess; while it would have the great advantage of removing them from an obscure and doubtful region where they may be the victims of loose speculation and popular superstition, to a well-defined and open region where they may be further illuminated by the observations of the associated sciences.

The instinct and the complex are, then, first of all organic dispositions, or systematic arrangements in the physical organism which condition specific modes of performance. There are further common characteristics. In each case there are stored energies and channels arranged in groups and patterns. These channels, like river beds, have the property of transmitting and guiding energy and also of drawing energy by their lower resistance. In each case there must be stimuli, that is, conditions external to the system in question which release its stored energies and set it going. The system must possess a peculiar susceptibility to such influences, like the explosive's susceptibility to impacts or high temperatures. In each case the system tends to find expression in coordinated muscular changes usually causing a movement of the skeletal muscles and some change in external objects or in the relation of the organ-

[21] For a physiological interpretation of complexes, *cf.* E. G. Holt, *The Freudian Wish*, 1915, pp. 3–99.

ism to them. Finally, in each case the system comes temporarily into possession of the organism as a whole, competing with other systems for the control of the common parts in which they overlap.

Emphasizing their points of similarity we obtain the broad outlines of a more fundamental conception, which they both exemplify and of which we may hope to find further exemplifications as well as improved and amplified statements. This more fundamental conception may perhaps best be termed *set* or *determining tendency*, a condition of the organism which qualifies and predisposes it to execute what Holt calls a specific "course of action," when a specific exciting condition occurs. Within the general framework of this conception let us now look for an interpretation of those characteristic modes of behavior that are supposed to distinguish the normal adult of the human species, such as acting interestedly, purposely, or rationally. This inquiry should lead us to the center of the motor-affective life, and of the intellectual life in its bearing on conduct. Our results will at best be rude schematic approximations. Science has not really penetrated into the wilderness of human nature. We are still camping on its frontiers or cruising off its coasts. But at such a time it is justifiable to make a hasty reconnaissance even though we may expect (and hope) that the maps we draw will soon be obsolete.

Let us start with that state of a man in which he is said to be prepared for future action, or to have his plans made so far as concerns what he is himself to do. A good example is afforded by the chess player who has a series of moves ready in advance, or the foresighted housewife who has made up her mind what to cook for each successive meal for the coming week. Future responses are at least partially organized, and are held in reserve in the order of their appropriate stimuli. As each in turn is called into play the next in order moves into its place, just as in baseball the "batter-up" moves towards the batter's box, selects his bat and makes a few preliminary swings. While the serial order of prepared responses is not always as clear as this, something of the kind is a constant feature of human conduct. Immediately behind what I am doing now there is what I am going to do next, and behind that, successive lines of reserves which advance toward the front as my action unfolds. A similar situation must be supposed to exist when a response is only partially executed. A football player about to catch and run back a punt has the whole action outlined in advance. At the same time that he is watching the ball in its course through the air he is ready with neuro-muscular coordinations of the arms and legs to grasp the ball, ward off tacklers and run down the field. At any given instant in the course of this action some part of it is

being carried out, while other parts are carried as far forward as is possible without interference with that part which is being carried out. So far are these preparations carried that the organism is at the time incapable of doing anything else, and will if "over-anxious" carry the preparation too far, as when the running-response crowds the catching-response and causes the player to fumble the ball.[22].

We may say, then, that most human action instead of being born *de novo* at the moment of performance merely passes over from an implicit or partial state to an explicit or complete state. The organism is loaded and aimed, in short, before it is fired. Or the organism is ordinarily in a state of being committed in advance of performance. These reserve responses must be supposed to possess an unqualified physiological existence, even though they are not in action and even though they should never be called into action. It is unnecessary to dwell upon the various forms which these may assume. They may be so related that the action of each provides the stimulus for the action of the next, in which case they are in some sense parts of one plan; or they may be correlated with successive stimuli externally and independently supplied, as when one is prepared for a sequence of probable contingencies.

Now let us suppose such a reserve or partial response to be in the advanced stages of preparation and then to be checked through the non-appearance of the complementary stimulus or through some impediment. Either one of two things will happen. If there are other prepared responses for which the appropriate stimuli are present, the organism may go over to another course of action. If, however, the first course of action possesses a temporary monopoly of the energies of the organism, responses will occur which have the character of being auxiliary. These may assume the form of "random" activities, habits or inherited reflexes, for which suitable stimuli are presented. This will continue until some one of the random activities provides the complementary stimulus or removes the impediment and so permits the original response to complete itself. But in proportion as an organism is "experienced" in the matter such auxiliary activities are not random. Certain of the present stimuli have acquired "meaning." The immediate response which they excite is again, as in the case of the original response, the first of a series of acts. Successive ulterior acts are made ready

[22] Or the anticipatory set may have so much momentum that it is impossible to readjust quickly to a change in the situation. A good example is afforded by the case of the subject who being prepared to lift a heavy weight is given a light one instead, with the result that it is flung high above the head with a wholly disproportionate expenditure of energy. (Quoted from Müller by James, *Principles*, 1890, II., p. 502, note.)

to take their turn. But in some cases these tentative reserves will coincide and in some cases they will conflict with the suspended response. Where the former is the case the tentative act will be performed and where the latter occurs the act will be abandoned after having been "considered."

We have now obtained a first approximation to a view of interested or purposive action. An act is performed because its prepared sequel or implicit phase coincides with the incomplete part of some course of action that is at the time dominating the organism. Under the tension created by a suspended response an organism performs one or more acts which *promise* the act or acts in which the response is carried out. Let us call the suspended response which for the time commands the energies of the organism, the *determining tendency;* and let us use the expression *auxiliary responses* for the acts which occur under the influence of such a tendency when its completion is delayed.

Suppose, for example, that my determining tendency is to obtain a book from my study. I approach the door and turn the knob, having in readiness and in serial order the neuro-muscular coordinations involved in pushing open the door, walking across the room and grasping the book. The door, however, resists my push. This act being checked, the ulterior acts are also checked and crowd it from the rear. I do not desist, responding irrelevantly to some other stimulus that happens to engage my attention, as a baffled kitten may turn to playing with its tail, but I "try," or engage in auxiliary responses. Being a person of experience, however, instead of kicking, pounding, shouting or running back and forth, I look around, that is I increase the number and range of stimuli that affect me. Finally I see a key hanging on a nail. This key means something to me. It has its immediate meaning as something to be grasped, and an ulterior meaning in terms of a series of anticipatory sets arranged in depth. In other words, when I grasp keys I also get ready to perform certain further acts in orderly succession. Near the head of this tentative line of action is that same anticipatory set (for pushing open the door) which now stands at the head of the original line, pressing for release. The implicit phase of the auxiliary course of action coincides with the suspended portion of the dominating tendency, and the auxiliary course of action is adopted.[23]

The central feature of this conception of human behavior is that

[23] In this case the suspended course of action is resumed at the same point at which it was interrupted. I might have adopted a course of action whose reserve phases coincided with those of the dominating tendency later on. In other words I might have gone around and climbed in a window, or borrowed my neighbor's book.

general state of the organism which has been termed a determining tendency. The organism as a whole is for a time preoccupied with a certain task which absorbs its energy and appropriates its mechanisms. It must be assumed that synaptic resistances are lowered or heightened not merely as a result of the past history of the nervous system, but as the result of some present systematic readjustment.[24] The passing of impulses through certain channels must be conceived not as the result of past erosion, but as the result of a correlated raising and lowering of gates. Another analogy is afforded by the insertion in a mechanical musical instrument of a record or perforated roll which calls the parts of the instrument into play in simultaneous and successive patterns.

There can be little doubt that the organism is subject to such "seizures." Hitherto attention has been directed chiefly to their origin, or to their behavior under peculiar conditions, as when they are repressed.[25] It is here contended that whether such determining tendencies are congenital or acquired, whether they are the agents or the victims of repression, they do in any case exist and give to human (and much of animal) behavior its characteristic form. In discussions of the instincts it has been customary to dwell upon their congenital origin, and upon the specific pattern of the response; while little has been said about the power which an aroused instinct has to take possession of the entire organism. We have heard much of the stimuli to anger, much of the feeling of anger, and much of the more or less specific and more or less doubtful innate forms of response in which it expresses itself. But we have heard comparatively little of the state of *being angry*.[26] Cannon's

[24] As evidence of the willingness of psychologists to accept other determiners of action than recency, frequency and other items of the local history of the mechanisms immediately involved, it may be noted that Watson includes among such determiners "the general setting of the situation as a whole," and the experiences, "emotional tensions," *etc.*, of the organism as a whole in the period immediately preceding the incidence of the stimulus. There should be added the general posture of the organism as a whole at the moment of the incidence of the stimulus. *Cf. Psychology from the Standpoint of a Behaviorist*, 1919, p. 3.

[25] Over and above the question of the formation of a determining tendency there is also the profoundly important question of its being called into play. What is it that puts any given determining tendency in the ascendancy at any given time and causes it to be successively superseded by others? Why am I now angry, now running to catch a train and now thinking out a problem? We may surmise what some of the causes are, such as routine, the onset of new stimuli, the completion of a previous course of action, health, fatigue, or the requirements of some long range "programme" of action. It is with no intention of slighting this question that it is omitted here. Whatever be the facts they will not invalidate anything that we may learn about the structure and working of the determining tendency when once it is in control.

[26] A notable exception is the passage in which James describes the situa-

experiments have shown, however, that in anger the whole organism is virtually commandeered for war purposes:

> Thus are the body's reserves—the stored adrenin and the accumulated sugar—called forth for instant service; thus is the blood shifted to nerves and muscles that may have to bear the brunt of struggle; thus is the heart set rapidly beating to speed the circulation; and thus, also, are the activities of the digestive organs for the time abolished. Just as in war between nations the arts and industries which have brought wealth and contentment must suffer serious neglect or be wholly set aside both by the attacker and the attacked, and all the supplies and energies developed in the period of peace must be devoted to the present conflict; so, likewise, the functions which in quiet times establish and support the bodily reserves are, in times of stress, instantly checked or completely stopped, and these reserves lavishly drawn upon to increase power in the attack and in the defense or flight.[23]

What is true of the bodily functions regulated by the autonomic nervous system is also true of the functions regulated by the central nervous system. In an angry organism bodily movements and postures, speech, imagery and ideation, attention, and even receptivity to sensory stimulation, are all drawn into one comprehensive response. Only stimuli whose meanings are congruent with this general cast of mind are responded to. Other responses involving different uses of the same parts and organs are temporarily inhibited. The organism literally lives and moves and has his being in anger.

While the major emotions exemplify the extent to which a determining tendency may master the total organism, they are in several respects peculiar. There is usually no specific end-response in which the course of action culminates. It is rather a series of acts of a similar type, such as abuse or blows in the case of anger. It is not highly articulated and subordinated, but moves from point to point upon the same level. Such action is usually too precipitate to be nicely selective. And, finally, such action is unique in the extent to which it interferes with the internal economy of the organism. Too much emphasis on the major emotions tends, therefore, to obscure the essential characteristics of the determining tendency. For a determining tendency may culminate in specific and delicate adjustment like the spelling of a word, or the picking of a lock. It may be highly organized, and convergent in long-delayed achievement. It is not necessary that the determining tendency should call the entire organism into play. One may prepare a lecture without disturbing one's digestive processes, or solve a problem without appreciable effect upon one's respiration. It is even possible that

tion in which "any strong emotional state whatever is upon us," or "the fever fit is on us": *Principles,* 1890, II., p. 563.

[27] W. B. Cannon, *Bodily Changes in Pain, Hunger, Fear and Rage,* 1915, p. 269.

two or more determining tendencies should be active at the same time and divide the organism between them. But the major emotions illustrate in an exaggerated form the distinguishing feature of the determining tendency, namely its selection of its own auxiliary and constituent activities.

If instincts be interpreted as determining tendencies, and if this be the mark of teleology, how are we to account for the difference between human behavior and the behavior of animals such as birds and insects whose rich instinctive endowment is proverbial? This question proves the importance of distinguishing between a *concatenation* and a *subordination* of responses. In the typical animal instinct a series or concatenation of responses is innately determined, owing to the fact that the successful completion of each component response in turn furnishes the stimulus for the next, the series culminating in a result that is useful to the organism. This is sometimes spoken of as a chain-reflex; but the term is misleading because it suggests that the component responses are pure reflexes, whereas the reflexive character lies rather in their sequence. The component responses themselves are tentative and intelligent. The segments of the nest-building operation, for example, such as the movements through space, and the selection, grasping and carrying of materials, are performed more or less experimentally and adapted to local conditions. The purposiveness of the behavior lies not in the appropriateness of the several phases to the end-result, but in the persistence and resourcefulness exhibited in each phase regarded by itself. The successive responses are not subordinated to the end-result as their purpose. The completed nest, in other words, is not anticipated. It is this which distinguishes the bird from a human house-builder. In the case of the latter the domestic complex is guiding the action throughout. Everything which the human agent does from the first consultation with his architect is in some measure qualified by this meaning and selected on this account. As a result there is not merely variability within each component, but variability of components. The human builder has subordinated his auxiliary acts to his determining tendency to a greater depth; and in order that this should be possible, he must be capable of a much more complicated far-flung play of meaning.

Let us now turn to certain salient characteristics of human behavior viewed as interested or teleological, for the purpose of verifying and amplifying the conception already outlined.

The central contention in William James's epoch-making *Principles of Psychology* is that selection, interest or purpose is the essential and distinguishing feature of mind. "Consciousness is at all

times primarily a selective agency."[28] Our senses themselves are organs of selection. Attention, perception, thought, taste, and the moral will are all modes of choice by which a man's personality and his world are finally individuated and stabilized. In one of his early essays, an essay that has been too little read, James distinguishes between real teleology in which the agent asserts his own end, and "hypothetical" teleology, or the case in which an external observer finding the result of an action to be useful imputes them to the agent as an end:

> We can describe the latter only in teleological terms, hypothetically, or else by the addition of a supposed contemplating mind which measures what it sees going on by its private teleological standard, and judges it intelligent. But consciousness itself is not merely intelligent in this sense. It is *intelligent intelligence*. It seems to supply both the means and the standard by which they are measured. It not only *serves* a final purpose, but *brings* a final purpose—posits, declares it.[29]

No one would now be disposed to dispute the essential soundness of this position. The human individual does not merely do things that are useful as judged by an external observer, but by its own activity adopts and seeks that result in relation to which its deeds are useful. And as James has so persuasively shown, the individual's experience is not dictated to him by external events, so that his mind merely echoes what goes on around him; but his experience is always in some sense what he makes it, what he is himself disposed to look for. But granting this, let us inquire whether we must therefore follow James in his next step, when he says:

> It seems hopelessly impossible to formulate anything of this sort in non-mental terms, and this is why I must still contend that the phenomenon of subjective "interest," as soon as the animal consciously realizes the latter, appears upon the scene as an absolutely new factor, which we can only suppose to be latent thitherto in the physical environment by crediting the physical atoms, *etc.*, each with a consciousness of its own, approving or condemning its motions.[30]

In other words must we adopt a dualistic sundering of mind and body in order to provide for the individual's assertion of his interests against the world about him? Does "physical" mean "passive," "secondary," "compliant"? Not unless one wishes it to. If

[28] Vol. I., p. 139. The best statement (too long to quote) is to be found in Vol. I., pp. 289–90. *Cf.* also I., pp. 8, 11, 402, 583–84, 594; II., pp. 558–59, 584. In the account in I., pp. 583–84, of voluntary association James speaks of "some general interest which for the time has seized upon the mind"; and gives an admirable account of pressure exerted by an obstructed response.

[29] From "Spencer's Definition of Mind as Correspondence," *Jour. of Specul. Philos.*, 1878. This essay is now reprinted in a volume entitled *Collected Essays and Reviews*, 1920, and the passage quoted appears on p. 64.

[30] *Ibid.*, pp. 64–65.

one wishes to divide the individual into two parts and say that the part in which the environment is agent and the individual reagent is body, and that the part in which the individual is agent and the environment reagent is mind, one is entitled to do so, merely as a matter of terminology. But to go further and to identify the physical organism wholly with the first, leaving the second to be provided for by some alien and incommensurable factor, is certainly not warranted by what we know about the physical organism. In proportion as the organism is unified and functions as a whole its behavior is incapable of being translated into simple reactions correlated severally with external events. The observer with his eye on any given set of external conditions finds that he can not predict the organism's behavior. Its behavior is "spontaneous" or internally conditioned. The most recent developments in physiology as well as in psychology and psychiatry have emphasized the extent to which the organism is integrated; the extent, in other words, to which any particular deed is to be accounted for in terms of the state of the organism itself rather than in terms of the incidence of an external stimulus. The better the organism is understood, the more does it assume just those characters which James insists upon as the prerogatives of mind. Thus in proportion as an organism is an individual its movements are governed by its own internal organization. Through these movements the organism not only acts on the environment, but introduces, terminates and varies those relations which enable the environment to act on *it,* and so determines even its own experiences and fortunes.

In further confirmation and amplification of our conception of purpose let us test it by the application of two ideas which will be generally accepted as contained in or associated with the traditional view of human conduct. These two ideas are: (1) the subordination of means to ends; (2) determination by the future.

1. *Subordination of means to ends.* Purpose is supposed to have two levels; or two factors of which one rules and the other serves. Just this duality and subordination seems to be provided in the relation of the determining tendency and the auxiliary response. This duality and subordination is especially striking in the case of the learning process, as this is studied experimentally.[31] The organism is first put into a condition of hunger, or fear, or desire. This state then acts both as the exciting cause of the trial activities and as the arbiter that determines which one among them shall be deemed successful. An organization which is exerting itself under the influence

[31] The writer has applied the present conception to, or, rather *derived it from,* the learning process in an article entitled "Docility and Purpose," *Psychol. Rev.,* 1918, p. 25.

of hunger will cease to exert itself only upon the performance of an act by which hunger is satisfied, that is, an act by which the food-taking response is enabled to complete itself. But what is true of the learning process is characteristic of developed behavior generally. Man, at least, is normally in the condition of one learning. That is to say, he is proceeding more or less tentatively, instigated by a determining tendency and finding a way that shall suit it. Through this conception the relation of end to means obtains an interpretation which distinguishes it, without isolating it, from the cognate relations of whole to part and of cause to effect.

2. *Determination by the future.* That a reference to the future as in some sense governing the act, is an essential feature of the traditional conception of purpose appears from the commonest terms of the teleological vocabulary, such as "for the sake of," "in order to," "with a view to," "in fear of," "in hope of," "lest," *etc.* It is evident that no account of human conduct which fails to set apart some special feature as the connotation of these expressions will, either in or out of scientific laboratories, seem to cover the facts. It is not sufficient to conceive the organism as making random efforts instigated by a determining tendency; nor is it sufficient that these efforts should cease when one of these efforts "succeeds." For there is as yet no act of which it can be said that it is done *with a view to* or *for the sake of* a future act.[32] "Random," "hit-or-miss" action is essentially unguided action, which so far as its own immediate determination is concerned is as disposed to miss as to hit. Philosophical opinion in the past has usually vacillated

[32] In an article entitled "Instinct and Purpose," *Psychol. Rev.*, 1920, Vol. 27, p. 227, Dr. E. C. Tolman says, speaking of a cat's efforts to get out of a cage, "The mere fact that on each single trial it hits about *until* it gets out, seems to me to be sufficient to characterize its activity as purposive. The cat hits about *in order to* get out, *for the sake of* getting out . . .," *etc.* While the article as a whole is an admirable statement of a view that I hold to be fundamentally sound both in method and in doctrine, I can not believe that the author is correct in this claim. What the exponents of purposiveness are looking for is an act of which it can be said that its occurrence is due to its promise or forecast. No act even though it be aroused by a determining tendency can be of the sort required unless it has meaning, that is, arouses anticipatory reactions to its sequel; and unless it is *preferred* because of such anticipation. Such anticipations are ordinarily the result of experience. But when an act is called "random" it is implied that it is of the nature of a pure reflex, that is unguided by experience. Dr. Tolman makes the important point that random activities of the sort aroused in connection with a determining tendency "vary within a class" which persists as a whole, and so are in type determined in advance. But even so we do not get the means selected because of its future or implicit relation to the end until the factor of meaning becomes effective. I believe that Dr. Tolman's account of thought is also unsatisfactory in so far as he fails here to regard "thought-of acts" as projected or uncompleted acts.

between two impossible positions. According to one opinion the purposive act is governed by an ideal form, or "final cause." But such a cause can not lie upon the plane of existence at all, and can not belong to the future of any particular act. It ends by becoming a static interpretation of the act, colored by illicit associations of futurity. According to the other opinion the purposive act is governed by the antecedently existing idea of a future result. But this explanation goes to pieces on the rock of dualism. A writer like Hobhouse, whose predilections are empirical and naturalistic, circles closely by the solution here proposed, but nevertheless ends with the more or less inscrutable paradox that in the case of purpose, "the doing is determined by what is done."[33]

The solution would seem to lie in the action of present dispositions which are correlated with future contigencies. A calendar of engagements filled out for the next month exists and acts in the present. Nevertheless it is correlated serially and progressively with the future. Similarly the responses organized and serially adjusted so as to be executed in sequence exist now among the determining conditions of present events. Nevertheless they are functionally correlated with a sequence of events in the historical future—in their own future. A series of dated anticipatory responses is thus a projection of the future upon the present spatial field, and provides a means by which the contingent future may be translated into the physically existent present.

Let us now sum up our conception of purposive or interested action, as a basis for discussing the very intimate, confusing, and compromising relations which it sustains with reason or intellect.[34] *A determining tendency*[35] *is a general response-system, tentatively ad-*

[33] *Development and Purpose*, 1913, p. 320. *Cf.* the statement on p. 319: "Generically then a purpose may be defined as a cause conditioned in its operation by its own tendency. . . . Not the result as an event which may happen tomorrow, next year, perhaps never, but its own movement towards the result, the conational movement that it initiates and sustains, is integral and essential to its being." But until the mechanism of tendency is indicated, such a statement is little more than a restatement of the problem.

[34] In an article to be entitled "The Independent Variability of Purpose and Belief," which will appear in a later number of this JOURNAL.

[35] Dr. Tolman (*op. cit.*, 222) prefers to use the expression "determining *adjustment*." I use the term tendency which suggests expenditure of energy, rather than adjustment which suggests a sluicing or distributing of energies otherwise provided, because I wish to regard the determining tendency as including whatever may be necessary to initiate effort. This will doubtless involve originating stimuli; but I should not like to use an expression that suggested that the determining set plays a waiting game. Otherwise Dr. Tolman's is the best account I know of the agency which I have here in mind.

I find much to applaud in an article by L. L. Thurston, entitled "The

vancing towards completion, or tentatively renewing itself.[36] *Interested or purposive action is tentative action adopted because the anticipatory responses which it partially arouses coincide with the unfulfilled or implicit phase of such a determining tendency.*

RALPH BARTON PERRY.

HARVARD UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Le Néo-Réalisme. RENÉ KREMER. Louvain: Institut de Philosophie. Paris: Félix Alcan. 1920. Pp. x + 310.

American neo-realists have every reason to be gratified with this European appreciation of their campaign and doctrine. Dr. Kremer has read everything, or nearly everything, that is of any value for throwing light upon his subject. His success in finding his material has been remarkable and his industry in mastering it quite extraordinary. The University of Louvain contained much that escaped destruction, and Professor F. C. S. Schiller placed his own library at Dr. Kremer's service.

Dr. Kremer notices that realism in one form or another has been gaining recognition in Great Britain, France, Germany and Austria, but he regards American neo-realism as the most explicit and most original. This chapter of American philosophy is, he says, almost unknown in Europe, and he has made it his task to describe it, with a minimum of criticism, to readers of French. The account seems substantially correct and very accurate. The movement had to be studied largely in a confusion of articles, most of them polemical in purpose if not in tone, and the author's patience and clear-sighted appreciation deserve all praise.

This is not to say, however, that any one of the leading neo-realists will be perfectly satisfied. No outsider is likely to render the doctrines of such a crusade to the complete satisfaction of the cru-

Anticipatory Aspect of Consciousness'' (this JOURNAL, 1919, Vol. XVI., pp. 561–569). I believe that this writer makes the mistake of defining behavior in terms of consciousness instead of consciousness in terms of behavior. But he makes skilful use of the serial arrangement of the response and the function of the ''unfinished act.'' His account of intelligence in terms of the degree of remoteness of ''consciousness'' (trial and error?) from the overt act, and his application of this view to instinct (563) are admirable. Although I did not read this article until I had formulated my own views, I am glad to find in it at least a partial corroboration of them.

[36] In other words a determining tendency may be progressive or recurrent. In this appears to lie the difference between *desire* and *enjoyment*. But this most important question must be omitted here.